

LANGUAGE COMPREHENSION IN EFL CLASSROOMS:  
THE EFFECTS OF TEXT MODALITY, VISUAL SUPPORT, AND GRADE LEVEL  
ON A FREE RECALL TASK

By

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The purpose of the study was to examine comprehension performance in English by Korean high school students, by answering the following question: What are the effects of text modality, visual support, and students' grade level on the students' performance in a written free recall task? The research design employed to address the question was a 2 x 2 x 3 factorial design. A total of 480 students participated in the study. The research data were drawn from the students' recall protocols. The data were analyzed with a three-factor analysis of variance.

The results of the study were as follows:

1. There was no significant difference among the mean recall scores of the first-, second-, and third-year students

in listening. In reading comprehension, there were significant differences among the grade levels. The students' reading performance increased as their grade level increased.

2. The second- and third-year students performed significantly better in reading than in listening. However, there was no significant difference between listening and reading in the first-year students.

3. The effect of content-related pictures on comprehension was significant regardless of text modality and grade level.

These results suggest that listening and reading are similar in terms of the general processes involved in receptive communication acts, but they are different with regard to their development in a foreign language, which depends much on the quantity and quality of instruction. It is also suggested that appropriate contextual visuals improve listening and reading for Korean high school students at all grade levels.

The significance of this study is that listening and reading were compared in one study with a large number of Korean subjects, so that the knowledge gained from this study would be more applicable to Korean English teachers who have unique teaching problems different from those of ESL teachers. The findings of this study could help them understand better how their students perform in the receptive English skills so that they can design instructional

practices accordingly. The findings would also contribute to future research efforts which aim at achieving a better understanding of comprehension skill development in a foreign language.

## CHAPTER 1 INTRODUCTION

### Statement of the Problem

Comprehension plays an important role in the process of language acquisition. A number of second language researchers have suggested that comprehension is the first step in the acquisition of a second language (L2) (Anderson & Lynch, 1988; Asher, 1972; Feyten, 1991; Krashen, Terrell, Ehrman, & Herzog, 1984). What is common in their argument is that we acquire language mainly by focusing on meaning, and that language input is necessary for the development of language proficiency. By nature, "language comprehension involves the formation of a meaningful mental representation from the perception of a physical linguistic stimulus" (Townsend, Carrithers, & Bever, 1987, p. 217). Depending on the modality of input, we distinguish two types of comprehension: listening and reading. Lundsteen (1979) defined listening comprehension as "the process by which spoken language is converted to meaning in the mind" (p. 1), and similarly we may define reading comprehension as the process by which written language is converted to meaning in the mind.

One of the questions which has long been a topic of interest in first language acquisition is whether the



processes of listening and reading are the same except for the difference that one involves oral language and the other involves written text. The proponents of a unitary comprehension model emphasize the fact that listening and reading are both receptive communication acts. Therefore, comprehension skills which children acquire naturally through listening can be transferred later to reading. They believe that performances in both listening and reading are affected by a general language processing skill.

Looking at language pedagogy, we can find many approaches that implicitly take this view as their basic assumption. For example, the language experience approach assumes that a child can read easier and faster if he/she understands the similarity between processing speech and print. The essence of this approach is the use of the language and thinking of children as a foundation for reading instruction (Hall, 1976). For another example, numerous studies which report the effectiveness of reading aloud for children's language development suggest that overall language comprehension processes work for both listening and reading (Beland, 1996; Dhaif, 1990; Elley, 1991). It is also noted that a lot of research on language comprehension in a first language context has generally shown a high correlation between a person's ability to understand written and spoken language (Carr, Brown, & Vavrus, 1985; Kintsch & Kozminsky, 1977; Smiley, Oakley, Worthen, Campione, & Brown, 1977; Sticht, 1972).

In opposition to the view that the receptive processes of reading and listening are more similar than different, those researchers who claim that listening and reading are different in crucial ways emphasize the quantitative and qualitative differences between oral and written communication. For example, Spiro and Myers (1984) claimed that "systematic differences between the physical characteristics of the two media and among the kinds of messages that are typically found in each suggest many points at which processes of oral comprehension would not overlap with or transfer to the written-language comprehension situation" (p. 480).

In second or foreign language (FL) classrooms, it seems more common to treat listening and reading as separate skills due to the obvious differences in the perception and decoding of the input. Also, unlike first language learning where children usually acquire complex oral language skills before learning to read, foreign language learners often develop listening and reading simultaneously from the beginning of language learning. For example, in Korean English classrooms where students learn English as a foreign language and teachers are native speakers of Korean, the teachers' oral-language proficiency is not usually good enough to lead instruction entirely in English. As a result, reading, or rather practice with written English materials, has long been a major means by which students acquire English. Recently, however, with the advent of communicative language teaching,

the need to provide appropriate listening instruction and to develop students' listening skills has increased. In this case, it is more difficult to determine how listening and reading develop and how they are related than in the first language context.

Current research on listening and reading generally views comprehension as a complex and active process which involves the interaction between two processing strategies: text-driven bottom-up processing and concept- or knowledge-driven top-down processing. This theory implies that foreign language learners should have some knowledge of language to interpret textual cues and should also utilize their background knowledge to reconstruct what is given in the text as a meaningful language. Schema-theoretic views of comprehension emphasize that comprehension is achieved only when new information is related to something that the individual already knows. The theory implies that we are able to facilitate L2 learners' comprehension by helping them use their knowledge of the world related to the text.

It is, however, not so clear when and how these extra textual cues are effective for foreign language comprehension. Factors such as students' linguistic knowledge and complexity of texts or tasks may affect the use of top-down processing. In order to teach effective use of processing strategies, teachers need first to understand what and how their students do while listening and reading.

In light of the discussion above, the following questions arise when teaching comprehension in foreign language classrooms. First, is there considerable overlap between the processing of listening and reading, even if students have not yet mastered the target language skills? Second, how well are foreign language learners able to utilize contextual cues to help listening and reading comprehension? Third, how do students develop listening and reading skills as they receive more instruction in a target language? And last, what is the relationship between the use of contextual knowledge and development of linguistic knowledge in comprehension?

The purpose of this study was to compare Korean high school students' comprehension of oral versus written English text under two different conditions: with or without contextual support, when successful comprehension was defined by the number of idea units recalled after listening and reading. The contextual support was given to the students through prelistening or prereading instruction which involved viewing the content-related visuals. Specifically, the following questions guided the study:

1. What is the effect of text modality on Korean high school students' comprehension performance in written free recall task?

2. What is the effect of visual support on Korean high school students' comprehension performance in written free recall task?

3. What is the effect of Korean high school students' grade level in high school on comprehension performance in written free recall task?

4. What is the effect of interaction among the text modality, visual support, and students' grade level in high school on comprehension performance in written free recall task?

### Research Hypotheses

The following hypotheses were tested in this study.

1. Whether a text is presented in oral language or in written language will have no effect on recall comprehension scores by Korean high school students. The review of research on first and second language comprehension suggests that general comprehension processes work for both listening and reading (Anderson, 1985; Anderson & Lynch, 1988; Sticht & James, 1984). It was assumed that listening and reading comprehension processes would be more alike than different when there were no differences in the form and content of the text required for listening and reading task (Danks & End, 1987).

2. The mean recall scores will be higher when Korean high school students comprehend a text with visual contextual support than they comprehend it without visual contextual support. Previous research indicates that we can help second or foreign language learners listen or read better by providing them with appropriate contextual support which

serves as a schema activator. Schema-theoretic views of comprehension emphasize that a person's organized knowledge of the world provides much of the basis for comprehending and remembering the ideas in texts (Anderson, 1994).

3. Recall comprehension scores will increase as students' grade level increases. It was assumed that students' knowledge of English and skills in using English would increase as they learn more in school.

4. There will be no interaction effect among the three factors of text modality, visual support, and students' grade level in high school on comprehension performance in written free recall task.

#### Significance of the Study

At a time when the focus of English instruction is to improve students' communicative competence, it is essential to understand the process of language comprehension. According to proponents of the comprehension-based approach to language teaching, listening and reading play a vital function in language acquisition (Courchêne, Glidden, Saint John, & Thérien, 1992). Most research on L2 or FL comprehension, however, has been done separately with listening or reading. Therefore, it is not always easy to see the shared qualities of or differences between the two receptive skills. It is also noted that development of the two language skills may differ depending on the context in which the skills are learned. Thus, results of the studies

done in the L2 learning context may not be applicable to FL learning situations like Korean English classrooms.

The significance of this study is that listening and reading are compared in one study with a large number of Korean subjects, so that the knowledge gained from this study would be more applicable to Korean English teachers who have unique teaching problems different from those of ESL teachers. Since they usually deal with a large number of students and daily classroom discourse is mostly accomplished through their native language, Korean, it is not always easy for them to have an accurate understanding of their students' language development. The results of this study could help Korean English teachers understand better how their students perform in listening and reading and how these skills develop as the students learn more at school so that they can design instructional practices accordingly. It is also expected that the findings of this study would contribute to future research efforts which aim at achieving better understanding of comprehension skill development in a foreign language.

#### Definition of Terms

The following terms are defined according to their use in this study.

Background knowledge is a person's previously acquired knowledge of the world.

Bottom-up processing is a language-driven approach to comprehension. A person starts with low levels of language

(from sounds and letters to words, phrases, etc.) to attain the meaning of the utterance or text when using bottom-up processing.

Comprehension refers to the process of relating new or incoming information to information already stored in memory (Bernhardt & James, 1987).

Comprehension-based approach refers to language teaching approaches which emphasize the role of listening and reading in the development of L2 or FL ability.

Decoding is the perceptual part of reading and listening. That is, recognizing words and sounds.

EFL is English as a foreign language. People learn English in a context where English is not used as a means of social communication.

ESL is English as a second language. People learn English in a context where English is used as a means of social communication.

FL refers to foreign language.

Listening refers to the process by which spoken language is converted to meaning in the mind (Lundsteen, 1979).

L1 refers to first language.

L2 refers to second language.

Perception is attending to and recognizing an input. In listening, it refers to distinguishing meaningful units from the stream of sound.



Proposition is the basic unit of comprehension. It is a meaning-based representation of the original sequence of words (O'Malley & Chamot, 1990).

Reading refers to the process by which written language is converted to meaning in the mind.

Schema (Schemata) is a data structure for representing the generic concepts stored in memory (Rumelhart, 1980). When activated, it is used as a guiding structure in comprehension.

Text modality refers to oral or written text involved in comprehension. Listening and reading are two different modalities through which we comprehend language.

Top-down processing refers to a concept-driven approach to comprehension. A person predicts and anticipates the content based on his/her prior experience and approaches the text accordingly.

## CHAPTER 2 REVIEW OF THE LITERATURE

The review of the literature consists of three sections. They are comprehension models in first language, the nature of comprehension, and comprehension assessment. The first section deals with the question of how listening and reading are related in the first language learning context. The second section reviews theories of comprehension processes and discusses how the theories apply to L2 or FL context. The last section is about a method of assessing comprehension which was used in this study, a free recall method, and its scoring systems.

### Comprehension Models in First Language

Is comprehension of listening and of reading more similar than different? This question concerns the controversy over whether listening and reading comprehension are achieved through the same general language processing skill or depend on totally different mechanisms. This section first reviews two different views of comprehension. Danks (1980) has identified these views as a unitary comprehension process and dual comprehension processes. Then, a third alternative view, a flexible model, is also described.

### Unitary Comprehension Model

When children learn their first language, they understand spoken language before they learn to read. The knowledge of language they have acquired through spoken language is later drawn upon in learning to read. The proponents of the unitary comprehension model assume that once children learn to identify words, the process of comprehending speech and written text do not differ. Fries (1963) stated this view clearly in the following paragraph:

Learning to read is not a process of learning new or other language signals than those the child has already learned. The language signals are all the same. The difference lies in the medium through which the physical stimuli make contact with his nervous system. In "talk", the physical stimuli of the language signals make their contact by means of sound waves received by the ear. In reading, the physical stimuli of the same language signals consist of graphic shapes that make their contact with his nervous system through light waves received by the eye. The process of learning to read is the process of transfer from the auditory signs for language signals which the child has already learned, to the new visual signs for the same signals. (p. xv)

Sticht, Beck, Hauke, Kleiman, and James (1974) have shown a similar attitude in their book "Auding and Reading: A Developmental Model." They prefer the term "auding" to listening, arguing that listening to and comprehending spoken language is different from listening to nonlanguage sounds, just as reading is different from looking. According to their theory, the development of the oracy skills of speaking and auding is built upon pre-linguistic cognitive content and conceptualizing ability. The literacy skills of reading and

writing utilize the same conceptual base and language competencies used earlier in auding, plus the additional competencies involved in decoding printed words to language.

In the same line of research, Sticht and James (1984) argued for the interactive position regarding oral and written languages. According to them, the three basic approaches to reading, code, meaning, and psycholinguistic, all share the following premises:

(1)oral language skills develop to a fairly high level prior to the development of written language, (2) oral and written languages share essentially the same lexicon (vocabulary) and syntax (grammar), and (3) beginning readers draw upon their knowledge of oral language in learning to read. (p. 294)

Based on these premises and along with previous empirical research support, they made an argument for the three basic concepts regarding listening and reading development in first language learning. The three basic concepts in their argument are the concept of reading potential, the concept of transfer, and the concept of closing the gap.

These three concepts were described, respectively, as follows: (a) a person's oral language comprehension level establishes a potential for what can be comprehended through reading, at least until reading develops to the point where new terms and syntactical constructions can be learned from print; (b) improvements in oral language will transfer to improvements in reading; and (c) in learning to read, people will close the gap between auding and reading skills. Sticht and James (1984) hypothesized that "auding surpasses reading until a measured skill at the seventh-grade level is

obtained; at that point, and beyond, there is equivalence in accuracy and efficiency of processing by ear and by eye" (p. 307).

A number of empirical research studies support the unitary comprehension model in first language context (Berger & Perfetti, 1977; Horowitz & Samuels, 1985; Kintsch & Kozminsky, 1977; Smiley et al., 1977; Townsend et al., 1987). In Berger and Perfetti's study, skilled readers performed better than less skilled readers by equal amounts for reading and listening and by equal amounts for paraphrase recall and literal question answering, suggesting that reading comprehension and listening comprehension depend on the same general language processing skill. Smiley et al. compared seventh grade students' comprehension of oral versus written prose. They found that good readers recalled more idea units in accordance with the units' structural importance than poor readers. Performance in reading was significantly correlated with performance following listening, suggesting that the same processes are involved in listening and reading. In another study, Townsend et al. found that readers and listeners used similar perceptual strategies, regardless of what modality the language appeared in and how effective their perceptual strategies were. In a recent study, Hedrick and Cunningham (1995) investigated the relationship between wide reading and listening comprehension of written language. They found that high levels of wide reading were associated

with a greater ability to comprehend written language while listening.

Whether or not we accept the unitary comprehension model, it is useful to look at the similarities between listening and reading to better understand the relationship between the two modalities. Coakley and Wolvin (1986) have summarized them as follows:

(1) both are receptive processes concerned with the decoding half of the communication process; (2) both use language; (3) both seem to be a complex of related skills; (4) both manifest, at the language or applied level, the same set of cognitive processes; (5) both require motivation and readiness; (6) both reach a level of comprehension through retention and recall; (7) both are affected by the message receiver's frame of reference; and (8) each seems to be affected by the teaching and learning about the other. (p. 21)

#### Dual Comprehension Model

In contrast to the unitary comprehension process view, dual comprehension processes suggest that there are enough differences between spoken and written communication to cause different processing strategies for listening and reading. Proponents of this view, even though they acknowledge similarities existing between listening and reading, question why children experience more difficulties in learning to comprehend the written words, while they acquire listening comprehension quite naturally. In contrast to the unitary comprehension view which contends that reading comprehension equals listening comprehension plus decoding, advocates of dual position believe that learning to read is more than

learning visual decoding. Their research, therefore, focuses on revealing linguistic differences, social-situational differences, contextual differences, and task differences existing between oral and written communication (Horowitz and Samuels, 1985) and they try to reveal additional or new processing skills involved in reading comprehension.

For example, Rubin (1980) performed comparative studies to see the differences between children's typical oral language experiences and the experiences of reading a book. Pointing out facilitative features that oral language contains for comprehension, such as use of prosodic features, interaction between a speaker and a listener, and use of body language, he concluded that processes of oral language comprehension would not overlap with or transfer to the written language comprehension situation. Believing that each language experience involves its own set of cognitive skills, he suggested that research needs to be done to reveal cognitive processing skills specific to listening and reading.

The advantage of written text over oral language is that a reader can reread or slow down to gain more complete comprehension. As a result, a reader would be able to pay more attention than a listener to the specified details in a text and be more aware of what statements are actually presented in the text. Hildyard and Olson (1982) tested these hypotheses and found that listeners paid primary attention to the theme of the story and readers paid close

attention to all details, even though they were incidental. In an earlier study, Walker (1975-1976) also reported significant differences between listening and reading with regard to precision of recall. In his study, readers tended to recall with greater precision than did listeners.

In relation to these results, Lund's study (1991) done in L2 comprehension has also shown that listeners rely more on top-down, schema-based processing than readers. In his study, when students of German were asked to recall a passage after listening or reading, readers recalled more propositions in more detail than did listeners. Listeners, on the other hand, focused on catching the main ideas by relying more on top-down processing. They even invented some plausible contexts for the passage when they had difficulty in perceiving the incoming data. Lund explained that the results were caused by the different perceptual nature of the two modalities. Oral text exists in a temporal dimension and listeners are not in control of processing the input. In addition, the sound systems of L2 seem more difficult than written words for adult learners. Lund supposed that these reasons caused the listeners to perceive and decode less of the text than the readers and rely more on context.

### An Alternative View

Danks and End (1987) asserted that listening and reading can be both similar and different processes, depending on the demands made on the cognitive processing system by the two



modalities. They believed that listening and reading comprehension processes are flexible and adaptable, in that differences in the specific task, differences in the form and the content of the text, and differences between individual comprehenders can change the overall process. Similarly, Byrnes (1986) characterized comprehension as follows:

it is not a fixed quantity or a fixed kind of knowledge, but always a multi-faceted composite, relative to the intent inherent in the text, the question that listeners/readers bring to the situation, and the degree to which they were able to find answers for them. (p.85)

In sum, it is not possible to have a conclusive answer for the question of whether listening and reading are the same because much of comprehension depends on the purpose a listener or a reader brings to a certain situation. In addition, there are a variety of text types and modes of speech which cause a person to use different comprehension processes even within one modality. An important aspect of doing research comparing listening and reading, therefore, would be to specify the situation or context in which listening and reading are accomplished. The purpose of comprehension, the difficulty and types of texts, and characteristics of the listener/reader should be clear. By doing this, we will be able to see the extent to which the two modalities can become similar or different.

### The Nature of Comprehension

In cognitive theory of comprehension, language comprehension is viewed as consisting of active and complex

processes which involve factors such as a person's linguistic knowledge, conceptual awareness, and cognitive processing skills. The interactional or interactive approach to comprehension stresses the active role a person plays in listening or reading. In this section, two basic processing strategies used in comprehension are discussed in connection with interactive models of language comprehension. Then, how we can apply the schema-theoretic views of comprehension to second or foreign language situations and what implications it has for foreign language comprehension instruction are dealt with.

### Comprehension Processing Strategies

Comprehension consists of an interaction between two sources of information: one from the reader or listener and the other from the input. That is, a person's prior knowledge of the world and language interacts with what is in the text for the construction of meaning. During the comprehension process, two general processing strategies are thought to be involved, depending on what kinds of information people primarily rely to achieve meaningful representation of the text: They are top-down and bottom-up processings. Schunk (1991) defined them as follows: "Bottom-up processing analyzes features and builds a meaningful representation to identify stimuli. In top-down processing, individuals develop expectations regarding perception based on the context" (p. 151). That is, people first build a

mental representation of the context and perceive the input in accordance with their anticipation in top-down processing.

If a person utilizes bottom-up processing in comprehension, language recognition occurs before meaning construction. He/She starts with recognizing features of letters and sounds and then increasingly combines them into words, clauses, sentences, paragraphs, and so on. The bottom-up processing may be used when we initially learn sound and writing systems of a foreign language or when we come up against unfamiliar texts. The act of comprehending, however, can not be achieved by this solely text-based approach alone. Because comprehension involves the formation of meaning in our mind, our knowledge of the world needs to be utilized in the comprehension process.

In top-down processing, comprehension is guided by such higher-level processes as forming expectations about what will happen and drawing inferences based on our prior experience with the world and language. Schema-theoretic views of comprehension emphasize that a person's organized knowledge of the world provides much of the basis for comprehending and remembering the ideas in texts (Anderson, 1994). According to Richards (1983), "script or schema knowledge is what we know about particular situations, and the goals, participants, and procedures which are commonly associated with them" (p. 223). Whitney, Budd, Bramucci, and Crane (1995) summarized two important roles schema knowledge plays in comprehension as follows: (a) "Schemata contain

slots for variables that may be filled by default values [i.e. the common possibility in the particular schema] and (b) schemata are used during encoding to guide processing and organize the mental representation" (p. 138). According to them, the first notion refers to a person's ability to infer the presence of some elements not directly stated in the text based on the framework provided by the schema, and the second states that schemata guide connections among text elements, thus improving a coherent understanding and remembering of the text.

These important notions of schema theory are well supported by the study of Bransford and Johnson (1972). In their study, when the subjects were given a passage which was difficult to comprehend and remember by itself, their recall was improved when they were supplied with appropriate semantic context (a picture or the topic of the text) before they heard the test passage. The context allowed them to invoke a schema related to the passage and to use their prior knowledge to specify the elements involved in the situation and relate them into meaningful interpretation. Bransford and Johnson's study clearly demonstrates that comprehension is achieved when a person relates input information with his/her prior knowledge.

A problem with strong schema-theoretic views of comprehension is their overemphasis on top-down processing. In the comprehension process both bottom-up and top-down processings occur simultaneously or alternately (Spiro &

Myers, 1984). Whereas bottom-up and top-down models describe language processing in a sequential manner, interactive models allow for parallel or simultaneous processing that happens in language comprehension (Kamhi & Catts, 1989). Meanings which are constructed through the top-down processing need to be confirmed by the bottom-up processing. Omaggio (1986) described this as follows: "Bottom-up processing assures that the comprehender will be sensitive to information that does not fit an ongoing hypothesis about the content and structure of the message; top-down processing helps the comprehender to resolve ambiguities and select among alternative interpretations of the data" (p. 102).

Kim's (1995) study demonstrates the importance of bottom-up processing in foreign language comprehension. In her study of reading, which investigated the effect of prereading instruction, subjects, faced with a difficult text, recalled a lot of non-textual information which had been wrongly inferred from the prereading instruction. In an extreme case, there were subjects who filled out the whole page of the answer sheet only to get a zero score. In contrast, there are many language learners who devote too much attention to trying to recognize low-level text structures. As a result, even though they recognize the words, they have difficulty in organizing them into meaningful units.

In relation to reading, Spiro and Myers (1984) claimed that "the crucial contributor to reading success may be

flexibility - the ability to adapt all the interacting components skills to situational needs" (p. 484). Successful comprehension requires efficient use of both bottom-up and top-down processes. According to Carrell (1988b), the two processes should be bidirectional, and the overreliance on unidirectional processing is the cause of comprehension problems, whether it is text-biased or knowledge-biased. L2 or FL learners need to learn to use processing strategies efficiently to enhance their comprehension in the target language.

### Assumptions about L2 Comprehension

As is suggested in the previous section, comprehension is influenced by the language learner's ability to use different processing skills. An ongoing discussion in L2 comprehension research concerns the question "whether learners use their knowledge of the world, situations, and roles of human interaction to focus on meaning (top-down) and then use their knowledge of words, syntax, and grammar to work on form (bottom-up) or vice versa, and when and how these two interact" (Rubin, 1994, p. 219). The question arises mainly because foreign language learner's linguistic competence in the target language is not developed enough to assure efficient interaction between top-down and bottom-up processes.

The result of this inefficient interaction can be manifested in two different ways. One assumption is that due

to their inadequate command of the language, foreign language learners are more apt to use bottom-up processing and utilize contextual information less than they can. Another assumption is that L2 or FL learners may attempt to compensate for their linguistic deficiencies by relying more on top-down processes (Carrell, 1988b; Johnson, 1982).

McLeod and McLaughlin's study (1986) supports the first assumption. They examined different reading strategies employed by second language learners and native speakers of English. They asked the subjects to read two passages and tape-recorded them for the analysis of errors. Errors were coded into two categories, meaningful and nonmeaningful. Another task the subjects were given was to predict the proper word categories from context through cloze test. They found that although advanced ESL students scored better in both tests than beginning students, their error patterns on the oral reading test were the same as those of beginning ESL readers. The proportion of the meaningful errors committed by advanced ESL readers was significantly lower than in the case of native speakers. The advanced students were aiming at decoding rather than comprehending the text. This study shows that even the advanced level ESL students pay much of their attention to low-level characteristics of texts when they deal with English.

In another study, Bacon (1992) investigated the relationship between L2 listening-passage difficulty and learner strategies. She found that students of Spanish used

more top-down strategies with the more familiar passage than with the less familiar passage. That is, listeners employed more text-based or bottom-up strategies on more difficult input. Comparing eye movements of L1 and L2 German readers, Bernhardt (1984) also found that inexperienced L2 readers used low-level processing strategies by devoting more time to sampling information and that they did not adjust their processing times, but maintained the same strategy over three repetitions of reading.

In contrast to the findings of the above studies, Wolff (1987) and VanPatten (1989) have reported that L2 learners rely more on top-down processing. Wolff assumed that cognitive processes involved in first language and L2 comprehension would be the same, but the way common strategies and processes were applied in the decoding of texts and utterances would cause differences. She found that the easy text was recalled in more detail and nonrelated propositions were fewer than in the recall of the more difficult text. When the subjects were exposed to the more difficult text and, therefore, their bottom-up processing was impeded by language deficiencies, they used top-down strategies instead. VanPatten investigated whether Spanish learners were able to process form and meaning simultaneously. He found that learners had difficulty in attending to form when it interfered with their comprehension of content.



## Teaching L2 Comprehension

Even though it appears that learners of L2 vary their processing strategies depending on the difficulty of the text and their level of language proficiency, a general consensus in L2 or FL teaching is that the focus of comprehension instruction should be given first on the meaning rather than on language forms. This is because, by nature, language comprehension is the process of meaning construction from aural or written input. Krashen (1985) claimed in his "Input Hypothesis" that we are able to acquire L2 rules as a result of understanding comprehensible input which is a little bit beyond our level of competence with the help of extra linguistic contextual support.

Though current research on L2 acquisition also acknowledges the beneficial effects of grammar instruction on L2 development (Doughty, 1991; Ellis, 1995; Long, 1983, 1988; Scarcella & Oxford, 1992; VanPatten & Cadierno, 1993), the researchers have also found that learners benefit most from the instruction when the awareness of grammar occurs in a meaningful context. For example, teaching strategies such as input negotiation activities for interactionally modified input (Long, 1983; Loschky, 1994; Pica, Young, & Doughty, 1987), input interpretation task (Ellis, 1995), and processing instruction (VanPatten & Cadierno, 1993) try to help learners make form-meaning connection.

Taking this into account, the implications of schema-theory are very useful in improving L2 listening and reading instruction. The theory implies that if L2 or FL learners are induced to use their background knowledge in comprehension process, this can override the difficulty they may have in dealing with linguistic aspects of the text.

Researchers point out that one of the main sources of processing difficulties with L2 learners is a lack of appropriate schema activation (Carrell, 1984; Carrell & Eisterhold, 1983; Nelson, 1987; Omaggio, 1986; Richards, 1983). This is because the schema is usually culture specific and is not part of L2 or FL learners' background knowledge. Therefore, teachers need to be aware of whether students have problems not only with grammar or vocabulary, but also with prior knowledge of a topic. If students do not have appropriate prior knowledge, they should be given necessary background knowledge, through appropriate prereading or prelistening activities. Carrell (1988a) has suggested the following techniques for prereading activities and has recommended that teachers experiment with various prereading activities and use them in varying combinations: "viewing movies, slides, pictures; field trips; demonstrations; real-life experiences; lectures; class discussions or debates; plays, skits, and other role-play activities; text previewing; key-word/key-concept association activities; and even prior reading of related texts" (pp. 245-246).

In order to help L2 learners use their background knowledge in comprehension process and thus to make language learning experience meaningful, Omaggio (1986) put great emphasis on the teaching of language in context. She contended that "the effective use of contextual cues may need to be taught overtly to second language learners, especially if their prior experience with language study has not exploited such cues to the fullest extent" (p. 99). The importance of contextual cues in language learning are well illustrated in the following example. When a language learner heard a simple sentence, "Do you have two five's?" in a gas station, he did not understand what he heard because it was spoken in a single short sound unit. But, he suddenly was able to recall every word in the sentence when the native speaker showed him a ten-dollar bill. According to O'Malley and Chamot (1990), because the meaning of any word often depends on the context, if the context can be used to narrow the range of possible meanings, lexical access is faster and predictions about text meaning lead to greater comprehension. Therefore, teachers need to encourage students to listen or read even when there are words, phrases, and sentences which students do not understand but can infer the meaning of from the context.

A significant amount of research evidence exists to support the notion that activating students' background knowledge or providing them with appropriate contextual

support helps learners comprehend a foreign language better. In the following, some of these studies are presented.

Mueller (1980) investigated the effects of contextual visuals on recall measures of listening comprehension in German. He hypothesized that visuals providing contextual cues to a listening passage would enhance learner comprehension of it. He believed that the visuals would serve as advance organizers activating relevant aspects of stored memory, thereby providing a framework within which the passage could be understood. The contextual visual he used depicted the general situation, showed the participants in the text, their relationship to one another, and the relevant concepts dealing with the situation. Mueller found that Visual-Before groups (seeing the visual before hearing) were benefited most, especially at the lower proficiency levels. Visual-After groups scored higher than did the No-Visual groups, but lower than the Visual-Before groups. Moreover, the study showed that the effects of the visuals were inversely related to the listeners' level of language proficiency.

In another study, Hudson (1982) explored the effects of externally induced schema on ESL students' reading. He tested three conditions: (a) students read a passage, took a test, reread the passage, and took the test again; (b) students were presented with a vocabulary list prior to reading and being tested; and (c) students were shown pictures relating to the general topic of the passage and

were asked to make predictions about the passage content. The results of the study indicated that the effectiveness of externally induced schemata (the third condition) was greater at lower levels of proficiency than at higher levels, and that induced schemata could override language proficiency as a factor in comprehension. He argued that a high degree of background knowledge could overcome linguistic deficiencies.

In a more recent study, Herron and Hanley (1992) taught French cultural themes to two groups of children in a French FLES (Foreign Language in Elementary Schools) classroom. In the experiment, one group of children just read a passage and a cultural note and the other group viewed a video module related to the cultural themes, but not replicating the content of the passage prior to reading the texts. Later, the students took a written quiz which asked about the cultural information. According to the results, the students in the experimental condition (video + text) performed significantly better than the students in the control condition (text + cultural note). The video with its rich context could facilitate comprehension and retention of the cultural information by making the information more meaningful to the children

### Comprehension Assessment

In the area of L1 and L2 listening and reading, one measure of comprehension in research is the free recall task. The present study used a written free recall task to measure

listening and reading comprehension of Korean high school students. In this section, first, the rationale for the use of the recall method for comprehension assessment is discussed. Also, advantages and disadvantages of recall procedures as a measure of comprehension are dealt with. Then, scoring systems of written recall protocols are discussed.

### Free Recall Method

In this study, listening and reading are viewed as an active process of relating new information in input to information already stored in memory. According to Johnston (1983), "the most straightforward assessment of the result of the text-reader interaction is a free recall method in which subjects are asked to report what they remember from the text they have just processed" (p. 54). Bernhardt (1991) recommended immediate recall as a measure of reading comprehension, arguing that "recall reveals something about the organization of stored information, about some of the retrieval strategies used by readers, and reveals the method of reconstruction which the reader employs to encode information in a text" (p. 200). She also added that, if questions are used to test comprehension, the test questions form another "text" that may cause an additional interaction among text, reader, and test questions. However, generating recall data does not influence a reader's understanding of a text. Researchers claim that the recall task is a valid

experimental evaluation in reading and listening (Bernhardt, 1991; James, 1986; Markham, 1988; VanPatten, 1989).

A disadvantage of the free recall task is that, by nature, it asks students to use production skills. Therefore, we can say nothing about comprehension or memory of what is not recalled (Johnston, 1983), even though it is due to students' lack of production skills, not comprehension failure. Cognitive demands of the free recall task is yet another drawback. Students must understand and store the information and then have to retrieve it on demand (Johnston, 1983). To overcome these drawbacks, L2 researchers often use students' native language recalls (Kim, 1995; VanPatten, 1989; Wolff, 1987). In order to allow students to use their native language, however, the researcher should know the students' native language. Also, this method is difficult to use when subjects' native language backgrounds are different from each other.

Lee (1986) investigated what differences could be found if the recall protocols are written in the subjects' L1 or L2. He also tested how subjects' knowledge that they would be required to recall affected their performance. He scored each of the written recall protocols for the number of idea units it contained which corresponded to those in the original passage. Lee found that those writing in their L1 recalled more of the passage than those writing in the L2. Whether the subjects were given direction before or after the reading didn't make a significant difference. In this

research, however, he did not analyze the data qualitatively to see the differences in the types of idea units recalled, but focused on seeing the quantitative differences between the idea units recalled in L1 and L2. Therefore, it was not clear how L1 recall was better than L2 recall with regard to the students' comprehension processing skills.

In another study, Carrell (1983) asked students to write recall protocols in their target language. In the study, she examined the effects of three types of background knowledge to compare students' processing strategies in reading. The variables she examined were (a) the presence of context versus no context, (b) the presence or absence of specific, concrete lexical items, and (c) familiar versus novel text. The subjects consisted of native speakers of English, advanced ESL students, and high-intermediate ESL students. Subjects were given a passage and were told that after they read it, they would be asked to produce a written recall in English. The number of idea units recalled by the subjects were scored in comparison with the number of idea units in the passage. The results revealed that only native speakers utilized all three types of background knowledge in reading comprehension. Neither advanced nor high-intermediate ESL students appeared to utilize context or textual clues. Advanced ESL readers were affected only by familiarity with the content area.

However, the poor use of top-down processing used by L2 readers in Carrell's study might reflect the students' lack



of English writing skills, since the students had to recall in English, which was not their native language. Wolff (1987), who also compared L2 learner's processing strategies using a recall task in the students' native language, reached a different conclusion from that of Carrell's study. She found that L2 learners processed texts in the same way as in their L1 and made up for deficiencies in their language knowledge by referring more efficiently to their world knowledge and by relying more heavily on top-down processing.

With regard to the question, "does recall in the native language reflect the construct of second language comprehension as it is currently understood from both a theoretical and from an empirical perspective?", Bernhardt (1991, p. 218) concluded that the answer is "yes." She claimed that immediate recall protocol in students' native language is a valid method for operationalizing comprehension, since what we are interested in is the students' comprehension ability, not the knowledge of the target language.

### Scoring System

In order to score students' recalls, researchers perform content analysis of the text which students listened to or read and decide how many and what kinds of idea units the text contains. Then the recall protocols are scored for the quantity and quality of idea units against the idea units in the original text. According to Kintsch (1982), the recall

procedure has the advantage of considerable objectivity and reliability. A number of studies have maintained that the number of idea units generated by subjects yield direct evidence of overall comprehension (Carrell, 1987; Lee, 1986; Markham, 1988; VanPatten, 1989). A drawback to the procedure, however, is that some important features of prose recall is neglected (Kintsch, 1982). That is, partial recall of propositions and elaborated and inferenced recall of the original text are neglected.

Though different researchers define idea units differently depending on their research purposes, usually this concept corresponds to either individual sentences, basic semantic propositions, or phrases (Bransford & Johnson, 1972; Carrell, 1983; Lee, 1986). For example, Carrell (1985) defined idea units in her study of ESL reading as follows:

Each idea unit consisted of a single clause (main or subordinate, including adverbial and relative clauses). Each infinitival construction, gerundive, nominalized verb phrase, and conjunct was also identified as a separate idea unit. In addition, optional and/or heavy prepositional phrases were also designated as separate idea units. (p. 737)

VanPatten (1989) also adopted this definition to score subjects' written recalls in his study that examined Spanish students' listening behavior.

Many other researchers perform propositional analysis to specify idea units (Horiba, 1990; Kintsch & Kozminsky, 1977; Markham, 1988). When researchers perform propositional analysis, they generate a list of propositions which is a relatively formal representation of the semantic content of

the text (Bovair & Kieras, 1985). According to Connor (1984), a proposition is a meaning unit which always consists of a predicate (relation) and one or more arguments which belong to the predicate (that is, concepts connected to each other by the relation). Taking an example from Horiba (1990, p. 191), a sentence "*She checked her purse and realized that she didn't have any change*" can be analyzed into five propositions: P1 (*check Yoshiko purse*), P2 (*possess Yoshiko purse*), P3 (*realize Yoshiko P4*), P4 (*neg P5*), and P5 (*possess Yoshiko change*).

In addition to its quantitative data, recall method provides useful qualitative information for understanding students' comprehension behaviors. By looking at individual students' recalls, teachers or researchers are able to identify vocabulary problems, grammar problems, risk taking, and inference strategies specific to the students, as well as their ability to use the structure of the text and titles to come to an understanding (Bernhardt & James, 1987; James, 1986). In her study of Korean students' reading behavior, Kim (1995) analyzed "incorrect" recalls produced by Korean learners of English and attempted to reveal types and sources of problems in EFL reading. In this case, she was not able to quantify incorrect recalls which didn't reflect the text, and so undertook a qualitative analysis of the recalls.

In sum, immediate recall protocols provide in-depth information on how readers and listeners cope with texts while, at the same time, providing quantifiable data for

large-scale comparison and contrast (Bernhardt, 1991; James, 1986).

### Summary

Comprehension is "the process of relating new or incoming information to information already stored in memory" (Bernhardt & James, 1987, p. 66). Two different views in relation to listening and reading comprehension are unitary comprehension position and dual comprehension position. The first claims that once children learn to identify words, the processes of comprehending speech and written text do not differ. The latter suggests that there are enough differences between spoken and written communication to cause different processing strategies for listening and reading. These two different views have been tested in L1 learning by numerous researchers, but there is very little empirical research which compares listening and reading in L2 or FL learning.

In the present study, listening and reading were compared in a FL within the theoretical framework proposed by interactive models of comprehension. According to the interactive approach to comprehension, a person's prior knowledge of the world and language interacts with what is in the text for the construction of meaning. Top-down and bottom-up processings are two general processing strategies that are thought to be involved during the comprehension process. The schema-theoretic views of comprehension

emphasize the role of top-down processing in comprehension process and its practical implications for listening and reading instruction have been of much interest among many L2 or FL researchers. In the present study, the role of contextual knowledge in listening and reading was investigated with students of different levels of English proficiency.

As a measure of comprehension, free recall method has been known to be "the most straightforward assessment of the result of the text-reader interaction" (Johnston, 1983, p. 54) and has been used for both listening and reading research. According to Bernhardt (1983), this method is considered the best available measure of overall comprehension. The immediate written free recall method was employed in the present study to measure Korean high school students' comprehension of English texts.

## CHAPTER 3 METHODS

### Introduction

The purpose of this study was to examine comprehension performance in English by Korean high school students, by answering the following question: What are the effects of text modality, visual contextual support, and students' grade level in high school on the students' comprehension performance in a written free recall task? In With-Visual condition, content-related pictures were provided to the students before listening or reading, so as to examine the effect of contextual knowledge on comprehension. In No-Visual condition, the students listened to or read the text without any extra-textual help.

For the purpose of the study, cognitive and linguistic demands required for listening and reading were made similar except for those that were caused by the modality difference. That is, the same text was presented in oral language and in written language, and the time needed to perform the listening and reading task was approximately the same. It was assumed that listening and reading could be compared with less bias when the factors related to the text and task differences were controlled.

Specifically, answers to the following questions were sought:

1. What is the effect of text modality on Korean high school students' comprehension performance in a written free recall task?

2. What is the effect of visual support on Korean high school students' comprehension performance in a written free recall task?

3. What is the effect of Korean high school students' grade level in high school on comprehension performance in a written free recall task?

4. What is the effect of interaction among the text modality, visual support, and students' grade level in high school on comprehension performance in a written free recall task?

#### Null Hypotheses

The following null hypotheses were tested in the study:

1. There will be no statistically significant difference between the mean recall scores when Korean high school students comprehend a text through listening and when they comprehend it through reading.

2. There will be no statistically significant difference between the mean recall scores when Korean high school students comprehend a text without visual support and when they comprehend it with visual support.

3. There will be no statistically significant difference among the mean recall scores of first-year, second-year, and third-year students.

4. There will be no significant interaction effect among the text modality, visual support, and students' grade level in high school on recall comprehension scores.

In order to make decisions about the above null hypotheses, three-way analysis of variance (ANOVA) was performed. After ANOVA, post hoc comparison was conducted using Tukey's method in order to determine specific differences among the means.

#### Population and Sample

The population of the study consisted of Korean high school first-, second-, and third-year students. Most of them ranged in age from 16 to 18. The students began to learn English as a foreign language from the first year of middle school (around age 13) and have been learning it since then. After graduating from a middle school, they were randomly assigned to one of the high schools within the district where they lived. In middle school, they had four to five 45-minute English classes per week for three years and in high school they have six to nine 50-minute English classes per week (The number of English classes increases as students enter higher grades.) Since every school in Korea follows a curriculum developed by the Korean Ministry of Education and is required to use one of five textbooks



approved by the department, most high schools in Korea are regarded as basically homogeneous, except for some special schools such as art schools, science schools, and foreign language schools.

The sample in the study was drawn from a girl's high school in Korea. Four classes among the 12 classes were randomly selected from each grade level. Therefore, a total of 12 classes with 480 subjects (40 subjects from each class) participated in the study. The four classes in each grade level were assumed to be homogeneous as a whole, since every class in each school year was made uniform as much as possible at the beginning of the school year. The subjects had learned English with the same textbooks and their main source of English-learning experience came from school.

This study, therefore, was performed with the assumption that all the classes within each grade level would be homogeneous. It was also assumed that, as a whole, the students in third-year classes would have better English language skills than the second- and first-year students, and the students in second-year classes would be better than the first-year students in their English knowledge. However, it needs to be understood that each class consisted of students with varying degrees of English skills because year-level grouping was made solely based on the amount of schooling the students had received.

## Listening and Reading Curriculum

Class hours. The first-year students have six, the second-year students have seven, and the third-year students have nine 50-minute English classes per week. Among these classes, one class-hour is specifically assigned for listening at grade levels one and two. The number of listening classes are three for the third-year students. There are no class hours specially named for reading. However, the rest of the class hours can be defined as reading classes, since most of these class periods are spent practicing with written English materials to develop reading skills.

Purpose of learning. Recently, English curricula in Korean high schools have begun to put emphasis on developing students' communicative competence. In practice, however, the main purpose of English instruction is to help students earn as many points as possible on the college entrance examination. Therefore, teaching practices reflect the content of this test. The examination consists of 50 multiple-choice questions with 10 listening items and 40 reading items. The following examples are chosen from the 1994 College Scholastic Ability Test to provide a general idea about the types of listening and reading materials the students practice with at school. As the examples show, most of the listening items ask questions about simple daily

conversations and are much easier than the reading items in terms of vocabulary and grammatical structures.

#### Listening Example:

Where is the following conversation taking place?

(Woman: May I help you? Man: I'd like to send this parcel to Los Angeles. Woman: OK, Put it on the scales ...It weighs 10 pounds. How will you send this?

Man: Air mail, please. Woman: Anything else? Man: Five postcards, please. Woman: That's \$16 all together.)  
(1. library 2. airport 3. restaurant 4. post office 5. gymnasium)

#### Reading Example:

What's the purpose of the following writing?

(Thank you for sending your check in payment of your July bill. Please accept our sincere excuses for writing to you as we did. Our collection letters proceed automatically in a series, and occasionally a payment crosses a letter in the mails. This is apparently what happened in your case. Your check has been properly credited, and your account is now marked paid in full.)

(1. ordering 2. apologizing 3. rejecting 4. warning 5. recommending)

Instructional materials and methods. Except for the main textbooks which are required, the teachers select commercially produced listening and reading materials which prepare students for the college entrance examination. As the students' grade level goes up, the students spend more time with the preparation books.

Teaching methods are similar for all grade levels. For listening, students first skim the comprehension questions before they listen to a passage; after listening to the audio-recorded passage, they solve the comprehension questions together with the teacher. After this, they listen to the text again while looking at the written version of the

oral text. For reading, the teacher explains the content of instructional materials to the students using translation, questioning, structural analysis, and vocabulary and idiom practices. As students' grade level goes up, however, students spend more time reading the text by themselves and solving the accompanying comprehension questions. Through this, the students increase familiarity with the type of questions appearing on the college entrance examination.

### Research Design

The experiment used a  $2 \times 2 \times 3$  factorial design in which the three independent variables were (1) text modality (listening versus reading), (2) visual support (No-Visual versus With-Visual), and (3) students' level of English-learning experience at high school (first-year students, second-year students, versus third-year students). The dependent variable was the subjects' comprehension scores as measured by the written free recall task. The different combinations of the three factors are depicted in Table 1.

Table 1. Design of the Study and Grouping of the Subjects

	No-Visual		With-Visual	
	Listening	Reading	Listening	Reading
1st-Year	1L	1R	1LV	1RV
2nd-Year	2L	2R	2LV	2RV
3rd-Year	3L	3R	3LV	3RV

### Test Material

The selection of the text for the comprehension test was guided by the following criteria:

1. A comparison of listening and reading can be made only on the basis of a common text (Lund, 1991). A methodological problem in doing this is to choose an appropriate text for both listening and reading. This concern arises since oral language and written discourse are usually different in many essential features. In this dilemma, a folk tale can be chosen as a solution. In their study of listening and reading recall, Smiley et al. (1977) used a folk tale. According to them, these tales retain many of the qualities of spoken messages and can be presented as written texts.

2. Since the purpose of the study is to measure students' comprehension ability, not the students' English knowledge, linguistic demands of the text need to be reduced so that most of the subjects can deal with it. Therefore, most of the vocabulary and sentence structures which appear in the text need to be those which the first-year students have already learned. The words and grammatical structures in the text need to be comparable to those in the subjects' English textbook.

3. The length of the text should be appropriate for both listening and reading. Bernhardt and James (1987)

recommended a text with approximately 200 words for a listening and reading recall test in a foreign language.

After all the above criteria were considered, the test material, a Chinese folk tale, was chosen from a book "Folk Tales Told around the World," edited by Pasamanick and Thoms (1993) (APPENDIX A). The title of the folk tale is "Heaven and Hell," and the tale consists of 142 words. Total sentences in the passage is 10 and, therefore, the average number of words per sentence is fourteen. Considering Bernhardt and James' (1987) recommendation, the text is relatively short, but it was considered to be appropriate for Korean high school students after examining their English textbooks. The oral text for the listening comprehension test was pre-recorded on an audio tape, based on the written text, by a native speaker. While recording the text, the native speaker read it aloud in the way he would tell a story in front of a group of students. The native speaker had an experience in teaching English to Korean college students. Based on his experience, he read the text slower than he would do it to English speaking students.

### Procedures

#### Grouping of Subjects

Four classes were randomly chosen among the 12 classes in each school year and they were randomly assigned to one of the four treatment groups: listening without visual support, listening with visual support, reading without visual

support, and reading with visual support. Therefore, there were a total of 12 treatment groups (four classes x three grade levels). They are 1LV (first-year students listening with the visual), 2LV (second-year students listening with the visual), 3LV (third-year students listening with the visual), 1RV (first-year students reading with the visual), 2RV (second-year students reading with the visual), 3RV (third-year students reading with the visual), 1L (first-year students listening without the visual), 2L (second-year students listening without the visual), 3L (third-year students listening without the visual), 1R (first-year students reading without the visual), 2R (second-year students reading without the visual), and 3R (third-year students reading without the visual). Each group consisted of 40 students, and therefore, there were a total of 480 subjects participating in this study.

### Prelistening and Prereading Instruction

To examine the effect of contextual support on listening and reading comprehension, three of 12 groups (1LV, 2LV, 3LV) received prelistening instruction and three groups (1RV, 2RV, 3RV) received prereading instruction. The other six groups (1L, 2L, 3L, 1R, 2R, and 3R) did not receive any instruction prior to the comprehension test. The purpose of the prelistening and prereading instruction was to see the effect of induced schemata (content-related pictures) on comprehension and to investigate if it facilitates the

subjects' top-down processing of the text, thereby increasing their overall comprehension. The prelistening and prereading instruction were given right before the comprehension test and provided to both listening and reading groups in the same way.

The prelistening and prereading instruction which were to provide contextual support for comprehension involved the following activities: (a) the teacher's presentation of the title "Heaven and Hell", (b) the teacher's distribution of two pictures to the subjects that provide contextual information about the test passage, and (c) the subjects' activity of matching the title with the pictures. One of the pictures depicted Hell as it is described in the passage and the other depicted Heaven. In order to help the students predict and anticipate what they might hear or read, the teacher told the students to examine the pictures carefully and to guess which picture described heaven and which was for hell.

### Testing Procedures

Written free recall task was used to measure the subjects' comprehension of listening and reading. As was discussed in the previous review section, this procedure is considered the best available measure of overall comprehension (Bernhardt, 1983). All subjects were tested during their regular class hour in their usual classrooms. The English teacher who was in charge of each group (each



class) lead the test session while the researcher was present in the classroom. All written and oral directions were given in Korean, which is the subjects' native language. Before the test, the subjects were asked to write their name and class number on a page which contained directions for the test in Korean (APPENDIX B). Listening and reading test procedures were performed in the ways described below. These procedures are adapted from the immediate recall protocol procedure recommended by Bernhardt and James (1987).

#### Listening comprehension test procedures

1. The subjects receive a piece of paper which contains directions pertaining to the test (APPENDIX B).

2. The subjects are asked to write down their class number, student number, and name on the paper.

3. Prelisting instruction is given by the subjects' teacher only to the listening with the visual groups (1LV, 2LV, and 3LV).

4. The subjects are told that they will be asked to write down everything they remember from the passage in Korean after they have listened to the text twice.

5. The subjects hear a tape-recorded passage once and they are asked not to take notes.

6. Immediately after they have heard the text twice, they are asked to write down everything they remember in Korean on the paper they have received.

7. The teacher collects recall protocols from all the subjects.

### Reading comprehension test procedures

1. The subjects receive a piece of paper which contains directions pertaining to the test (APPENDIX B).

2. The subjects are asked to write down their class number, student number, and name on the paper.

3. Prereading instruction is given by the subjects' teacher only to the reading with the visual groups (1RV, 2RV, and 3RV).

4. The subjects are told that they have four minutes to read the passage and that they will be asked to write down what they recall (The time is approximately the same as the time needed to listen to the text twice).

5. The written text is distributed to each subject.

6. The subjects are given time to read the text.

7. Four minutes after the subjects started to read, they are told to put the text under the desk.

8. The subjects are asked to write down everything they remember in Korean on the paper they have received.

9. After they have finished, the teacher collects recall protocols from all the subjects.

During the above procedures, the following points were stressed for the purpose of the study. First, the subjects were asked to listen to or read the text for comprehension of the whole text. They were encouraged to listen or read to the end even if there were some points they did not understand. Second, the subjects were told to write down as much as they could remember from the passage, even if they

could not remember whole sentences. Third, the subjects in reading groups were told that they should not refer back to the text while they wrote down their recalls. Fourth, the time for recall writing were not limited, so that each subject could have enough time for their writing. Finally, care was taken to keep the general test administration procedures constant across all groups.

### Scoring Procedure

First, the text used for the listening and reading comprehension tests was analyzed into idea units using a method adapted from Carrell (1985). Each of the following was identified as an idea unit: (a) a single clause (main or subordinate, including adverbial and relative clauses), (b) each infinitival construction, gerundive, nominalized verb phrase, and conjunct, (c) optional prepositional and adjectival phrases, and (d) heavy prepositional phrases. The idea unit analysis was carried out independently by the researcher and another English teacher. After final agreement was reached for the division of the passage, the analysis resulted in a total of 37 idea units for the passage (APPENDIX C).

Second, the written recall protocols of every subject were scored for the presence of idea units from the original text. Each protocol was scored by the researcher primarily. But another trained rator scored a random 10 samples from each group (120 protocols) and the scores of these samples

were correlated with the researcher's scoring of the same 120 protocols. Pearson's product-moment correlation coefficient for interrator reliability was significant ( $r = .994$ ,  $p = .000$ ). The correlation seemed high enough to justify the use of scores rated by the researcher as the study data.

In scoring, not only verbatim recalls but also meaningful paraphrases of the original text were given credit, when they contained the same meaning as the original text. If the subjects wrote the same idea units more than twice, they were counted only once. In addition, linguistic differences between English and Korean were considered. According to Kim (1992), "the Korean language, unlike the word-order dominant language such as English, is heavily context-dependent language and allows a high degree of ellipsis if the omitted part can be understood and recovered from the context" (p. 109). Therefore, a credit was given when the referent meaning of an idea unit was able to be understood from the discoursal context of the recalled text (Horiba, 1990), even though the idea unit did not contain all the words of the original unit.

Third, the total number of recalled idea units was tallied for each subject.

### Preliminary Investigation

Preliminary investigation of the test procedures was administered prior to the experiment to ensure standardized procedures across all experimental groups. The preliminary

study was conducted in a high school with 40 first-year students. The school was not the same school from which the subjects of this study were drawn. The students were divided into four groups: listening, reading, listening with the visuals, and reading with the visuals. The experimental procedures described in the previous sections were performed by the researcher.

After this investigation, the following directions were added. First, the subjects were told that they should not help each other. The purpose of the study was explained to them and it was emphasized that the researcher needed accurate data about the students' performance. Second, even though the test would not affect the students' grades, they were asked to do their best. In addition, the following points were added during the experimental test procedures. First, during the prelistening and prereading instruction, the teachers were asked to make it clear that the pictures were related to the text the students would read or hear. Second, the subjects in visual groups were told to put the pictures under the desk before they started to read or listen to the text. All the other procedures were administered as they are described in the previous Testing Procedures section.

## CHAPTER 4

### RESULTS

The purpose of this study was to compare Korean high school students' listening and reading comprehension of English texts in two different conditions: with contextual visual support and without visual help. Findings of the study are dealt with in this chapter as follows: (a) the results of the statistical analysis of the data and (b) the examination of the research questions.

#### Results

A 2 x 2 x 3 factorial design was used to analyze the data obtained from the study. The first variable, text modality (mode), consisted of (1) listening and (2) reading. The second variable, visual, consisted of (1) No-Visual and (2) With-Visual. The third variable, students' grade level, consisted of (1) first-year, (2) second-year, and (3) third-year. The dependent variable was the subjects' comprehension scores as measured by the written free recall task. The computer program used to analyze the data was the SAS General Linear Model Procedure (PROC GLM).

First, mean recall scores and standard deviations for each experimental condition are presented in Table 2. Examining the mean scores, it was observed that there were relatively regular patterns with regard to the three

Table 2. Means and Standard Deviations of English Comprehension by Visual, Mode, and Grade

Grade	No-visual			With-visual	
		Listening	Reading	Listening	Reading
1	M	6.42	8.80	10.60	12.35
	SD	3.40	5.06	5.30	5.47
2	M	7.87	13.15	11.97	18.00
	SD	5.49	7.39	3.79	7.65
3	M	9.90	16.42	12.30	21.25
	SD	4.75	8.00	6.40	6.87

variables of mode, visual, and grade level. Reading group means were higher than listening group means in each grade level in both No-Visual and With-Visual conditions. Looking at the visual variable, With-Visual group means were always higher than No-Visual group means in both listening and reading at all grade levels. It was also noticed that group mean scores in all conditions increased as the grade level increased.

In order to examine the statistical significance of these mean differences, the recall scores were analyzed with a three-factor analysis of variance. The results of this analysis are presented in Table 3.

The analysis of variance revealed significant main effects,  $p < .0001$ , for visual contextual cues, text modality, and grade level. In addition, there was a significant two-

Table 3. Summary of Three-Way Analysis of Variance

Source	df	MS	F
Visual (A)	1	1904.033	53.39*
Mode (B)	1	3182.700	89.24*
Grade (c)	2	1190.227	33.37*
A x B	1	21.675	0.61
A x C	2	7.877	0.22
B x C	2	329.556	9.24*
A x B x C	2	23.331	0.65
Error	468	35.663	

\*  $p < .0001$

way interaction,  $p < .0001$ , between text modality and grade level. Therefore, the four null hypotheses presented for the research were all rejected.

Since there was no significant interaction involving the visual factor and the main effect for visual was significant, we could say that Korean high school students' comprehension of English was better when they listened or read with visual contextual help than they comprehended without these extra-textual cues.

The significant interaction effect involving mode and grade indicated that direct interpretation of the two main effects of mode and grade might be misleading. This was because the effect of one variable, say mode, might depend on



the different levels of students' grade with which it was combined. To assist in interpreting this interaction, Table 4 presents means and standard deviations associated with this interaction. Each of these means was averaged across the two levels of the third factor, visual. Figure 1 is a graphic representation of the interaction between the variables of mode and grade.

Looking at the graph, it showed that listening and reading did not remain parallel as we move from one level to another level of students' grade. While reading was always higher than listening, the difference increased as grade level increased. This graph, however, was made based on sample means and it was not certain where there was statistically significant differences among these cell means. Therefore, post hoc comparisons of 15 possible pairs of cell means were done by using Tukey's method.

The null hypothesis stated that there was no significant mean differences for all pairwise comparisons and the

Table 4. Means and (Standard Deviations) Associated with Mode and Grade

Grade	Listening	Reading
1	8.51 (4.90)	10.57 (5.54)
2	9.92 (5.12)	15.57 (7.86)
3	11.10 (5.73)	18.83 (7.80)

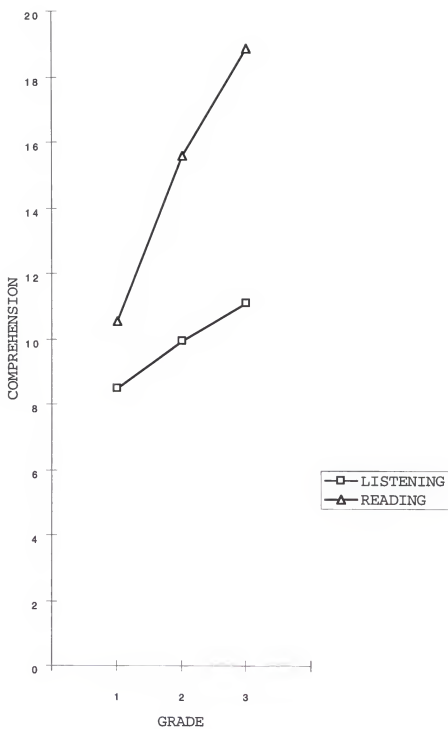


Figure 1. Listening and Reading as a Function of Grade Level

alternative hypothesis stated that there was significant mean differences for some pairs. With alpha set at .05, the null hypothesis was rejected and the minimum significant difference required to reject the null hypothesis was 2.84. Mean differences between the following nine pairs were found to be significant: L1 vs. R2, L1 vs. R3, L2 vs. R2, L2 vs. R3, L3 vs. R3, L3 vs. R2, R1 vs. R2, R1 vs. R3, and R2 vs. R3 (The numbers, L, and R indicate grade level, listening, and reading respectively.)

This post hoc comparison revealed that reading comprehension was better than listening comprehension only for second- and third-year students (Mean differences:  $R3 - L3 = 7.73$ ,  $R2 - L2 = 5.65$ ). The mean difference between L1 ( $M = 8.51$ ) and R1 ( $M = 10.57$ ) was not significant. In addition, it revealed that students' comprehension increased as students' grade went up only in reading (Mean differences:  $R2 - R1 = 5$ ,  $R3 - R2 = 3.26$ ). In listening comprehension, there was no significant differences among the first-, second- and third-year students. It was also noted that reading comprehension of the third-year students showed significant difference from all the other group means. That is, the mean of R3 was significantly higher than the means of first- and second-grade listening and reading, and it was also significantly higher than the mean of L3.

### Research Questions

This section summarizes the above results according to the research questions proposed in this study.

Research Question 1. The first research question was to examine the effect of text modality on Korean high school students' comprehension performance in recall task. It was hypothesized that students' comprehension in listening and reading would be similar when the linguistic and cognitive demands required for listening and reading tasks were made equal except for the mode of text presentation. The hypothesis was rejected in the second and third grade levels, but was supported in the first grade level. The second- and third-year students performed significantly better in reading than in listening. However, there was no significant difference between listening and reading in the first-year students.

Research Question 2. The second research question was to examine the effect of visual contextual support on Korean high school students' comprehension of listening and reading in English. It was hypothesized that the students who read or listened to the text with visual contextual cues would perform better in the comprehension test than the students who comprehended the text without visual help. This hypothesis was supported (See Table 3). With-Visual groups performed significantly better in listening and reading comprehension test than No-Visual groups.

Research Question 3. The third research question was to examine the effect of students grade level in high school on comprehension performance in written free recall task. It was hypothesized that the third-year students would perform better in the comprehension test than the second- and first-year students and that the second-year students would perform better than the first-year students. This hypothesis was supported only for reading comprehension. In listening comprehension, there was no significant differences among the first-, second-, and third-year students (See Table 3 and its post hoc comparisons).

Research Question 4. The fourth research question was to examine the effect of interaction among the text modality, visual support, and students' grade level in high school on comprehension performance by Korean high school students. It was hypothesized that there would be no interaction effect among the three factors. The hypothesis was rejected and there was a significant interaction between the mode of text presentation and the students' grade level. The interaction has been explained in relation to the research questions one and three.

## CHAPTER 5 DISCUSSION

This chapter includes the following sections: (1) a brief summary of the research problems and method, (2) discussion of the study findings, (3) limitations of the study, (4) implications of the findings for teaching listening and reading comprehension in Korean English classrooms, and (5) suggestions for further research.

### Summary of the Research Problems and Method

The purpose of the study was to examine comprehension performance in English by Korean high school students, by answering the following question: What are the effects of text modality, visual contextual support, and students' grade level in high school on the students' comprehension performance on a written free recall task? The research design employed to address the question was a  $2 \times 2 \times 3$  factorial design. A total of 480 students from a high school in a mid-sized city in South Korea participated in the study.

The research data were drawn from the students' written recall protocols. The data were analyzed with a three-factor analysis of variance. The research design employed in the study and the use of ANOVA allowed the researcher to compare listening and reading performance in English by Korean high school students, while simultaneously looking at the effect

of visual help on listening and reading comprehension. In addition, it was possible to examine how Korean high school students' listening and reading in English develop as their grade level goes up.

### Discussion

#### Listening and Reading Comprehension in FL

The results of the study indicate that there are similarities as well as differences between the processings of listening and reading in English by Korean high school students. To look at the similarities first, the results revealed that viewing the content-related pictures before the comprehension test effectively improved the students' performance in both listening and reading. This result, together with the result of the first-year students' performance in listening and reading not being significantly different, suggests that students may indeed utilize the same general language processing skill for both listening and reading.

These results are consistent with the theoretical position of L1 comprehension researchers such as Kintsch and Kozminsky (1977) and Sticht et al. (1974), who have advocated that learners will perform similarly on reading and listening comprehension. L2 researchers such as Anderson and Lynch (1988), Glisan (1988), and Rost (1990) also have acknowledged that listeners and readers utilize similar cognitive and

linguistic strategies for comprehension of texts. According to Danks and End (1987), "listening and reading are the same in that both are language comprehension processes that have available to them the same set of strategies to accomplish the task of comprehension" (p. 291). The results are not surprising because, in order to make listening and reading more comparable in this study, cognitive and linguistic demands required for listening and reading tasks were made similar by using the same text for both listening and reading and by allowing the listeners and readers about the same amount of time for the comprehension task.

While these results seem to agree with the view of the unitary comprehension model in L1, there were significant differences between the mean recall scores of listening and reading in the second- and third-year levels. The second- and third-year students performed significantly better in reading comprehension than they did in listening comprehension. These results are consistent with those of Lund's (1991) empirical study on FL comprehension. When he compared college students' comprehension in German, readers recalled more propositions and comparatively more details than did listeners.

The contradictory results that there was no significant difference between listening and reading performance in the first-year students, but the second- and third-year students performed significantly better in reading than in listening are not easy to explain. One possible explanation is that



even though general language-comprehension processes are involved in both listening and reading, listening and reading skills in a foreign language "develop on different schedules" (Lund, 1991, p. 201).

In this study, while the students' performance in listening did not increase significantly as their grade level went up, the performance in reading showed significant differences among the three grade levels with the higher grades showing better performance. These results are surprising because they indicate that even though the third-year students' knowledge of English syntax and vocabulary are better than that of the first- and second-year students and the second-year students have more knowledge of English vocabulary and syntax than the first-year students (the students' performance in reading supports this), the knowledge gains upper-grade students achieved through schooling did not significantly influence their comprehension in listening. It seems that foreign language learners need to learn first the two obviously different language systems, speech perception and print decoding, before they are able to process input for comprehension.

In contrast to ESL learners who are surrounded by English in everyday life, learners of EFL are typically exposed to English in the instructional setting only. Given this, the different rate of listening and reading development may be accounted for if we look at the students' language-learning experience at school. Only about 16 % of total

class hours are assigned for listening in the first and second years and it increases to about 30 % in the third year. However, even the third-year students had not benefited much from this increased instruction time in listening before the experiment began, since the Korean school year starts in March and this study was conducted in early April.

In addition to the shortage of listening classes, the overall atmosphere of the English class is not favorable for listening development. Classroom instructions and directions are usually given in Korean and natural oral interaction in English is scarce in Korean English classrooms. Even in the listening class, students practice with written materials except for the time they spend listening to the recorded oral version of the text. The students receive far less oral input than written input. In addition, developing skills in listening without natural oral communication would be less enjoyable and require more effort from the students.

The backwash effect of the college entrance examination needs to be considered also, since its influence on educational practice in Korea is great. The examination contains only 10 listening items and the remaining 40 items focus on reading comprehension. In addition, the level of proficiency required to solve reading items is higher than the proficiency level required to solve listening items (see the section of Listening and Reading Curriculum in Chapter 3 of this study). In summary, the results of the study suggest

that listening and reading are similar in terms of the general processes involved in receptive communication acts, but they are different with regard to their development in a foreign language, which depends much on the quantity and quality of instruction.

### The Role of Visual Support

The students provided with prior visual support in prelistening or prereading instruction performed significantly better in the recall task than the students who had not received such instruction before the comprehension test. That is, this study shows that appropriate contextual visuals can improve listening and reading comprehension recall for Korean high school students at all grade levels. This result is not surprising and supports prior theoretical and empirical research findings. In previous research, Bransford and Johnson (1972), Herron and Hanley (1992), and Mueller(1980) have demonstrated the beneficial effects of visual contextual support on listening comprehension; Hudson (1982) and Omaggio (1979) have shown the effectiveness of pictures in reading comprehension.

Mueller (1980) and Hudson (1982), however, reported that the effect of externally induced schemata such as pictures was great only at lower levels of language proficiency. According to them, visuals could help beginning students overcome comprehension deficits. Higher-level students were able to construct meaningful context based on the linguistic

cues provided in the text, making the pictures superfluous. In this study, the contextual visuals improved Korean high school students' listening and reading comprehension regardless of their proficiency levels. Even though the Korean high school students' proficiency in listening showed no significant difference among the three grade levels, their reading proficiency was not the same. As their grade-level increased, their reading proficiency also improved. It seems that even the third-year students in this study had not yet reached the level of proficiency which makes extra-textual visual support superfluous, even when the text they were dealing with was not difficult.

Comprehension was defined in the study as "the process of relating new or incoming information to information already stored in memory" (Bernhardt & James, 1987, p. 66). In the following discussion, the results of the study are accounted for in terms of the theoretical position proposed by the interactive models of comprehension. First, the pictures offered an organizational framework for the upcoming input. The students, therefore, were better able to relate new information into meaningful interpretation. In addition, when the students were able to process information within a meaningful context, they could retain the information better, thereby improving their performance in the recall task.

For example, when the recall protocols of group 3L (third-year students listening without the visual) are compared with the recall protocols of group 3LV (third-year

students listening with the visual), it is evident that the students in group 3L had more difficulty in organizing the overall context correctly than the students in group 3LV. While only five out of 40 students in group 3L understood the separateness of the two episodes described in the text, 29 out of 40 students in group 3LV understood that there were two contrasting events and made some distinctions between Heaven and Hell in their recall writing (See Example 1). The students in group 3L tended to recall the text as one event based on the repeated idea units and had difficulty catching the difference between Heaven and Hell (See Example 2).

Example 1. Recall protocol from Group 3LV (Translated in English)

People are always wishing  
 There were big tables of delicious food  
 people were angry and hungry  
 around the table  
 They had to use long chopsticks  
 to eat the food  
 In hell, no one could eat the food  
 By contrast, the heaven looked happy  
 because they could feed one another  
 with warm heart  
 using the long chopsticks

Example 2. Recall protocol from Group 3L (Translated in English)

When he visited  
 They were hungry and angry  
 There were big tables with lots of delicious food  
 They had to eat the food with long chopsticks  
 They were surprised because the chopsticks were long  
 It was impossible to put the food into their mouth

Second, the students in visual groups could hear or read words faster and could infer the meaning of the unknown words easier within the context (Denburg, 1976-1977; Omaggio, 1986; O'Malley & Chamot, 1990). In Denburg's empirical research,

the results indicated that pictures were helpful in a decoding task of reading. Schema theory implies that appropriate contextual knowledge can help L2 or FL listeners and readers overcome the difficulty they may have in dealing with linguistic aspects of the text. When the identification of words are facilitated with the help of the context, the interaction of processing skills between the bottom-up and the top-down could also be facilitated.

Third, in terms of the general principles of language learning, it is possible that seeing the pictures before listening and reading might have increased the students' level of interest in the input, reduced the anxiety level concerning the comprehension task, and increased the students' attention to the task. Ur (1984) stated in her book "Teaching Listening Comprehension" that "visuals have an important function as aids to learning, simply because they attract students' attention and help and encourage them to focus on the subject in hand" (p. 30).

#### Limitations of the Study

The following conditions are the limitations of this study.

1. The study employed only one type of comprehension measurement, which was an immediate written free recall task. Caution is needed in generalizing the findings to other measuring instruments and in drawing broad conclusions.

2. The subjects of the study were female Korean high school students. Generalizations to other EFL situations should be made only with caution.

3. Scoring and analysis of the recall protocols were performed with a main interest in the quantity of correctly recalled idea units. Analysis of the quality of idea units recalled was not included in the design of the study.

4. The study compared listening and reading by presenting the same text in two different ways: in oral language and in written language. The chosen text, that is, a Chinese folk tale, represents only one type of written or oral text.

5. The research was performed in classroom settings. The situation does not necessarily represent a real-life environment in which various types of listening and reading occur.

6. It is possible that some students might be able to produce recall protocols based solely on the pictures.

### Implications for Practice

Implications for teaching listening and reading in Korean English classrooms that arise from this study are as follows:

1. Korean high school teachers need to provide more opportunities for their students to receive oral input. The findings of this study indicate that Korean high school students are able to utilize general language-comprehension

abilities to process both oral and written English. However, given the FL context, their proficiency in listening develops at a much slower rate than their reading proficiency. This seems to be caused mainly by the fact that they practice and learn English mostly with written English materials. To increase oral input in the classroom, most of all the teachers need to make an effort to use English as a primary means of instruction, instead of Korean. Class directions and routines which typically occur in a familiar context will be good starting points for the teachers to begin using English as a communication tool.

2. Korean high school students need practice in "micro listening" (Ostyn & Godin, 1985). According to Ostyn and Godin, micro listening means "intensive and repeated listening to words/expressions/short sentences so that they are all understood in minute detail" (p. 348). Interactive models imply that lower-level processing skills are basic to comprehension. Analysis of the students' recall protocols indicates that even though the students in higher grade levels were able to decode words and interpret sentences in reading, they did not utilize this linguistic knowledge as proficiently in listening comprehension. Ostyn and Godin reported that micro listening was a very effective method in improving students' listening skills in these areas.

3. Korean high school students need to be given grammar instruction in order to understand what they hear or read with more accuracy. In the study by VanPatten and Cadierno



(1993), when students were given grammar instruction through "structured input" activities, their scores on the interpretation test improved significantly. Since the college entrance examination does not contain items directly asking about grammatical knowledge, grammar instruction is almost disregarded in the third-year English curriculum. However, grammatical competence is a necessary component in improving listening and reading proficiency. It is very surprising that only 11 out of the total of 120 third-year students correctly recalled idea units 14 and 26 (people were forced to sit) with their passive meaning. Most of the students who recalled the sentences recalled them as active sentences (people sat). The notion that people had to sit several feet from the table is important in understanding the events described in the text.

4. Prelistening or prereading instruction which provides necessary background knowledge prior to comprehension tasks is an effective way to improve Korean high school students' English comprehension. Korean English teachers do not usually employ this method when they teach the upper grade levels. The findings of this study, however, showed that even the third-year level students benefited from the content-related pictures in understanding the text. According to Schallert (1980), pictures are beneficial when "they illustrate information central to the text, when they represent new content that is important to the overall

message, and when they depict structural relationships mentioned in the text" (p. 514).

5. The teachers need to utilize recall protocol procedures not only as a testing method but also as a teaching aid. As a large-scale comparison study, the focus of this study was on the number of idea units correctly recalled from the text in order to test the students' general comprehension abilities in listening and reading. However, by looking at recall protocols, teachers are also able to identify vocabulary problems, grammar problems, and inference strategies used by individual students, as well as their ability to use contextual knowledge to come to an understanding. Since Korean high school teachers deal with a large number of students, it is not always easy for them to know about individual student behaviors. Recall protocols will be able to offer the opportunity to customize instruction to individual student needs.

#### Implications for Further Research

While there is much theoretical interest in listening and reading comprehension, there is very little empirical research which compares these two receptive skills in second or foreign language learning. Further research on the comparison of listening and reading in EFL situations, as well as in L2 situations, is clearly needed. Specifically, the following areas are suggested based on this study:

1. This study involved only one type of listening and reading text with a rather specific group of EFL learners at a low proficiency level. Further studies which involve learners at other proficiency levels and other types of texts are needed.

2. This study employed only a written free recall task to measure students' comprehension. More research needs to be done which employs other types of measurement, such as true-false questions, multiple-choice items, and cloze tests, together with recall procedures.

3. This study utilized only one type of contextual support, that is, pictures, to examine the learners' processing of listening and reading in context. Other types of contextual help, such as prereading, verbal cues, vocabulary preview, and comprehension questions, may have different effects on listening and reading comprehension.

4. Reading and listening recall protocols were analyzed quantitatively in this study. Further research which compares listening and reading through qualitative analyses of recall protocols will allow us to see the comprehension behaviors of L2 or FL learners in more detail.

5. This study compared listening and reading at a discourse level of understanding. More work is needed to compare listening and reading at other processing levels, such as speech perception/print decoding, lexical access, clause/sentence integration, and comprehension monitoring (Danks & End, 1987).

## APPENDIX A TEXT

### Heaven and Hell

People are always wishing. But once in China a man got his wish, which was to see the difference between heaven and hell before he died. When he visited hell, he saw tables crowded with delicious food, but everyone was hungry and angry. They had food, but were forced to sit several feet from the table and use chopsticks three feet long that made it impossible to get any food into their mouths.

When the man saw heaven, he was very surprised for it looked the same. Big tables of delicious food. People were forced to sit several feet from the table and use three-foot long chopsticks that made it impossible to get any food into their mouths. It was exactly like hell, but in heaven the people were well fed and happy.

Why? In heaven they were feeding one another.

(Pasamanick & Thoms, 1993, pp. 11-12)

APPENDIX B  
Directions (English Translation)

This test is to see your comprehension ability in English.

Please, first write down your class, student number, and name here.

Class:  
Number:  
Name:

Then, follow the directions given by your teacher.

APPENDIX C  
IDEA UNITS

1. people are always wishing
2. but once in China
3. a man got his wish
4. which was to see heaven and hell
5. the difference between heaven and hell
6. before he died
7. when he visited hell
8. he saw tables
9. crowded with food
10. delicious food
11. but everyone was hungry
12. and angry
13. they had food
14. but were forced
15. to sit
16. several feet from the table
17. and use chopsticks
18. three feet long
19. that made it impossible to get any food
20. into their mouths
21. when the man saw heaven
22. he was very surprised
23. for it looked the same
24. big tables of food
25. delicious food
26. people were forced
27. to sit
28. several feet from the table
29. and use chopsticks
30. three-foot-long
31. that made it impossible to get any food
32. into their mouths
33. it was exactly like hell
34. but in heaven the people were well fed
35. and happy
36. why
37. in heaven, they were feeding one another

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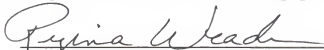
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